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10/695,827	10/30/2003	Tetsuo Asada	117637	7178

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EXAMINER	
MORRISON, THOMAS A	
ART UNIT	**PAPER NUMBER**
3653	

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,827	ASADA, TETSUO	
	Examiner	Art Unit	
	Thomas A. Morrison	3653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *6-9,14 and 16-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,10-13 and 15* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I, Figure 2 (i.e., claims 1-5, 10-13 and 15) in the reply filed on 1/26/05 is acknowledged. Applicant's original election of 1/26/05 is the election that has been acted on by the examiner for examination purposes. In other words, the examiner has disregarded applicant's later filed election, which was filed together with a petition on 5/27/05. The traversal in applicant's 1/26/05 election is on the ground(s) that the search and examination of the entire application could be made without serious burden. This is not found persuasive because the instant application is directed to four (4) patentably distinct species having substantially different structures and operating parameters. As such, search for each of these different structures and operating parameters places undue burden on the examiner. The requirement is still deemed proper and is therefore made FINAL. Claims 1-5, 10-13 and 15 have been examined, and claims 6-9, 14 and 16-22 have been withdrawn from consideration.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5, 10-13 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "the cut sheet". It is unclear if such cut sheet referred to in claim 5 is the previously recited "a cut sheet" in line 4 of claim 1, or the previously recited "a subsequent cut sheet" in lines 12-13 of claim 1.

Claims 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: (1) the structure that allows the feed roller to be held in contact with a topmost cut sheet in the sheet accommodating unit. What structure holds the feed roller?

Claims 12-13 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: (1) the structural relationship between the claimed elements that allows the second roller to start conveying the cut sheet when the first roller stops feeding the cut sheet, and (2) the structural relationship that allows the trailing edge detector to start detecting the trailing edge of the cut sheet when the first roller stops feeding the cut sheet. What is the structural relationship between the claimed elements (e.g., the second roller, the first roller, the trailing edge detector and the controller) that allows the recited functions to occur?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 12, as best understood, are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,485,011 (Yen et al.).

Regarding claim 1, Figs. 1A-1B show a sheet feed device (10) including

a sheet accommodating unit (11) for accommodating a plurality of cut sheets (S1 and S2) in a stacked condition;

a sheet feed roller (21) that feeds a cut sheet (S1) accommodated in the sheet accommodating unit (11), the cut sheet (S1) having a leading edge and a trailing edge defined in relation to a sheet feed direction in which the cut sheet (S1) is fed by the sheet feed roller (21);

a trailing edge detector (25) that detects the trailing edge of the cut sheet (S1) and outputs a detection signal indicative of the detection of the trailing edge; and

a control unit (26) that determines a timing at which a subsequent cut sheet (S2) is fed out by the sheet feed roller (21) based on the detection signal. See also column 3, lines 48-64 and column 4, lines 23-29.

Regarding claim 12, Figs. 1A-1B show a sheet feed device (10) including

a sheet accommodating unit (11) for accommodating a plurality of cut sheets (S1 and S2) in a stacked condition;

a first roller (21) that feeds a cut sheet (S1) accommodated in the sheet accommodating unit (11), the cut sheet (S1) having a leading edge and a trailing edge defined in relation to a sheet feed direction in which the cut sheet (S1) is fed by the first roller (21);

a trailing edge detector (25) that detects the trailing edge of the cut sheet and outputs a detection signal indicative of the detection of the trailing edge;

a second roller (23) disposed downstream of the first roller (21) with respect to the sheet feed direction, wherein the second roller (23) starts conveying the cut sheet when the first roller (21) stops feeding the cut sheet (S1), and the trailing edge detector (25) starts detecting the trailing edge of the cut sheet (S1) when the first roller (21) stops feeding the cut sheet (S1); and

a control unit (26) that determines a timing at which a subsequent cut sheet (S2) is fed out by the first roller (21) based on the detection signal. See column 3, lines 48-64 for explanation of controller 26, and also see column 4, lines 16-38 for an explanation of the stopping of the first roller 21, the starting of the second roller 23, the detecting of the trailing edge, and the feeding of a subsequent cut sheet.

4. Claims 1-2 and 12-13, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,194,970 (Iwanade).

Regarding claim 1, Fig. 3 shows a sheet feed device including

a sheet accommodating unit (2) for accommodating a plurality of cut sheets (1) in a stacked condition;

a sheet feed roller (4) that feeds a cut sheet (1) accommodated in the sheet accommodating unit (2), the cut sheet (1) having a leading edge and a trailing edge defined in relation to a sheet feed direction in which the cut sheet (1) is fed by the sheet feed roller (4);

a trailing edge detector (7) that detects the trailing edge of the cut sheet (1) and outputs a detection signal indicative of the detection of the trailing edge; and

a control unit (10) that determines a timing at which a subsequent cut sheet (1) is fed out by the sheet feed roller (4) based on the detection signal. See, e.g., column 4, lines 61-64 and column 5, lines 45-59.

Regarding claim 2, Fig. 3 shows that the trailing edge detector (7) is disposed in a position upstream of at least part of the sheet feed roller (4) with respect to the sheet feed direction. As such, the limitations of claim 2 are met.

Regarding claim 12, Fig. 3 shows a sheet feed device including

a sheet accommodating unit (2) for accommodating a plurality of cut sheets (1) in a stacked condition;

a first roller (4) that feeds a cut sheet (1) accommodated in the sheet accommodating unit (2), the cut sheet (1) having a leading edge and a trailing edge defined in relation to a sheet feed direction in which the cut sheet (1) is fed by the first roller (4);

a trailing edge detector (7) that detects the trailing edge of the cut sheet (1) and outputs a detection signal indicative of the detection of the trailing edge;

a second roller (30 or 5) disposed downstream of the first roller (4) with respect to the sheet feed direction, wherein the second roller (30 or 5) starts conveying the cut sheet (1) when the first roller (4) stops feeding the cut sheet (1)(see, e.g., column 3, lines 52-58 and column 4, lines 31-47), and the trailing edge detector (7) starts detecting the trailing edge of the cut sheet (1) when the first roller (4) stops feeding the cut sheet (1)(see, e.g., Fig. 4, steps S14-S16); and

a control unit (10) that determines a timing at which a subsequent cut sheet (1) is fed out by the first roller (4) based on the detection signal. See, e.g., column 4, lines 61-64 and column 5, lines 45-59.

Regarding claim 13, Fig. 3 shows that the trailing edge detector (7) is disposed in a position upstream of the first roller (4) with respect to the sheet feed direction.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 3, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,228,680 (Sugiura) in view of U.S. Patent No. 5,194,970 (Iwanade).

Regarding claim 3, Figs. 1-2 of Sugiura show a sheet feed device (1) including

a sheet accommodating unit (Fig. 1) for accommodating a plurality of cut sheets (A) in a stacked condition;

a sheet feed roller (5) that feeds a cut sheet (A) accommodated in the sheet accommodating unit (Fig. 1), the cut sheet (A) having a leading edge and a trailing edge defined in relation to a sheet feed direction in which the cut sheet (A) is fed by the sheet feed roller (5); and

a control unit (including 33). The Sugiura patent also shows that the sheet feed roller (5) is located at a first position upstream of a leading edge of the cut sheet (A). However, the Sugiura patent does not specifically show that the control unit (including 33) operates, as claimed.

The Iwanade patent shows that it is well known to provide a sheet feeding device (Fig. 3) with a trailing edge detector (7) that is positioned upstream of a sheet feed roller (4). Also, Iwanade explains that the trailing edge detector (7) detects the trailing edge of a cut sheet and such trailing edge detector (7) is used in combination with a control unit (10) to make a determination as to whether a jam has occurred or whether it is time to start feeding a subsequent cut sheet. See, e.g., column 4, lines 61-64 and column 5, lines 45-59 of Iwanade. In other words, the Iwanade patent discloses controlling timing of feeding a subsequent cut sheet based on detection by a trailing edge detector, as claimed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the Sugiura patent with a trailing edge detector and to use the signal from the trailing edge detector with the controller (including 33) of Sugiura to control timing of feeding cut sheets, because such an arrangement allows a jam to be

detected and feeding of a subsequent cut sheet to occur only when no jam is detected, as taught by Iwanade. Sugiura shows that the sheet feed roller (5) is upstream of a leading edge of a cut sheet, as claimed. Moreover, providing a trailing edge detector in the environment of Sugiura would result in such trailing edge detector being disposed upstream of the sheet feed roller (5) of Sugiura, as shown in the Iwanade patent. See, e.g., the position of detector 7 relative to sheet feed roller (4) in Fig. 3 of Iwanade.

6. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,022,640 (Greco, Jr.) in view of U.S. Patent No. 5,194,970 (Iwanade).

Regarding claim 10, Figs. 1 and 4 of Greco, Jr. show a sheet feed device (10) including

a sheet accommodating unit (including 22) for accommodating a plurality of cut sheets in a stacked condition (Fig. 4);

a sheet feed roller (12) that feeds a cut sheet accommodated in the sheet accommodating unit (including 22), the cut sheet having a leading edge and a trailing edge defined in relation to a sheet feed direction in which the cut sheet is fed by the sheet feed roller (12); and

a control unit (11). The Greco, Jr. patent also discloses that the sheet accommodating unit has a wall (22) for supporting a stack of cut sheets in a slanted condition (Fig. 1) and discloses that the sheet feed roller (12) is movable toward and away from the wall (22) and held in contact with a topmost cut sheet in the sheet accommodating unit (including 22). See, e.g., Fig. 4 of Greco, Jr. However, the Greco,

Jr. patent does not specifically show a trailing edge sensor and does not specifically show that the control unit (11) operates, as claimed.

The Iwanade patent shows that it is well known to provide a sheet feeding device (Fig. 3) with a trailing edge detector (7) near a sheet feed roller (4). Also, Iwanade explains that the trailing edge detector (7) detects the trailing edge of a cut sheet and such trailing edge detector (7) is used in combination with a control unit (10) to make a determination as to whether a jam has occurred or whether it is time to start feeding a subsequent cut sheet. See, e.g., column 4, lines 61-64 and column 5, lines 45-59 of Iwanade. In other words, the Iwanade patent discloses controlling timing of feeding a subsequent cut sheet based on detection by a trailing edge detector, as claimed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the Greco, Jr. patent with a trailing edge detector and to use the signal from the trailing edge detector with the controller (11) of Greco, Jr. to control timing of feeding cut sheets, because such an arrangement allows a jam to be detected and feeding of a subsequent cut sheet to occur only when no jam is detected, as taught by Iwanade.

Regarding claim 11, Greco, Jr. discloses a roller support (Fig. 4 and column 4, lines 14-18) that supports the sheet feed roller (12), the roller support being movable toward and away from the wall.

Allowable Subject Matter

7. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Walsh can be reached on (571) 272-6944. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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